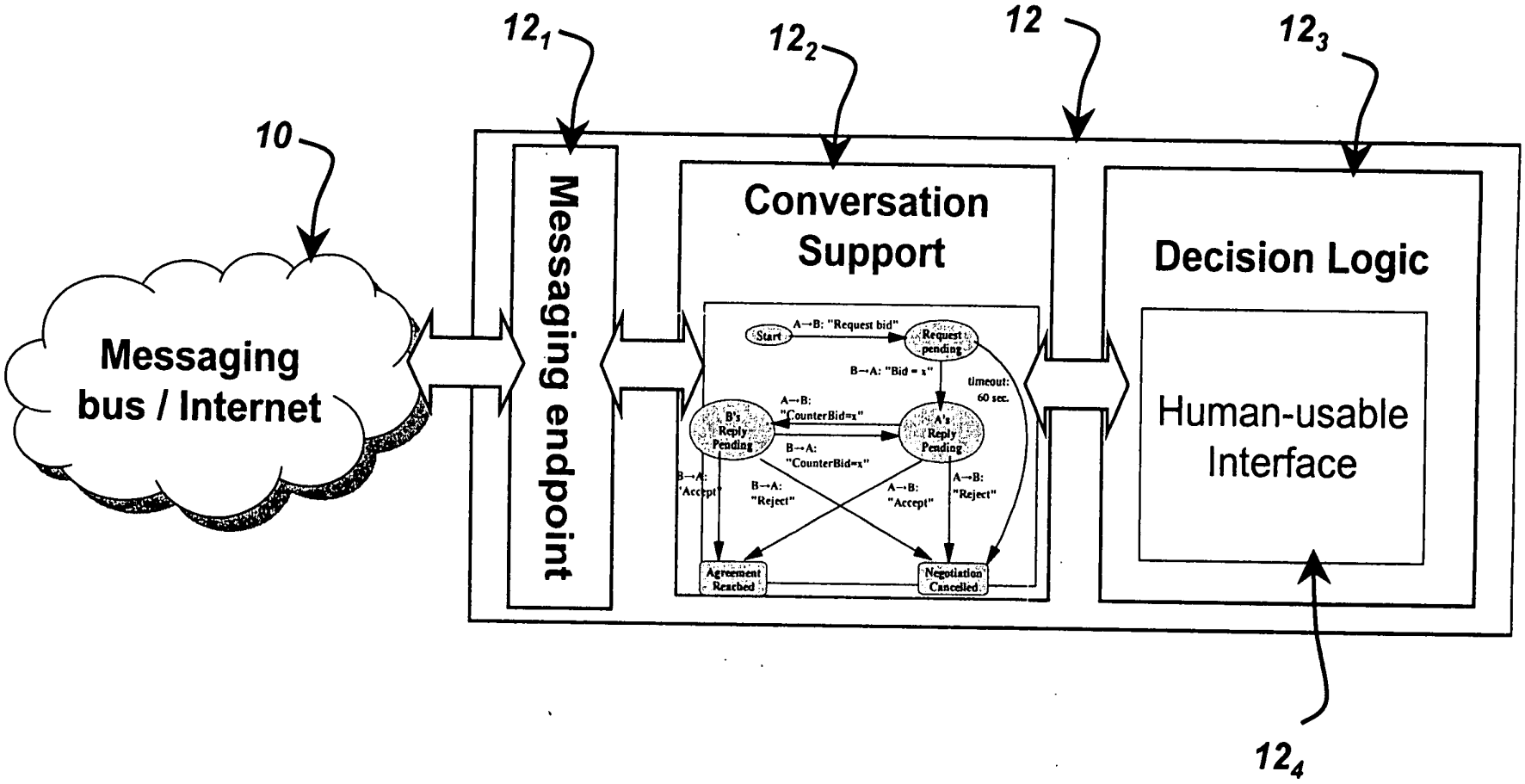
10
12₁
12₂
12
12₃
12₄
Messaging bus / Internet
Messaging endpoint
Conversation Support
Decision Logic
Human-usable Interface
Start
A→B: "Request bid"
Request pending
B→A: "Bid = x"
Timeout: 60 sec.
A→B: "CounterBid=x"
B's Reply Pending
A's Reply Pending
B→A: "CounterBid=x"
B→A: "Accept"
B→A: "Reject"
A→B: "Accept"
A→B: "Reject"
Agreement Reached
Negotiation Cancelled

FIG. 1

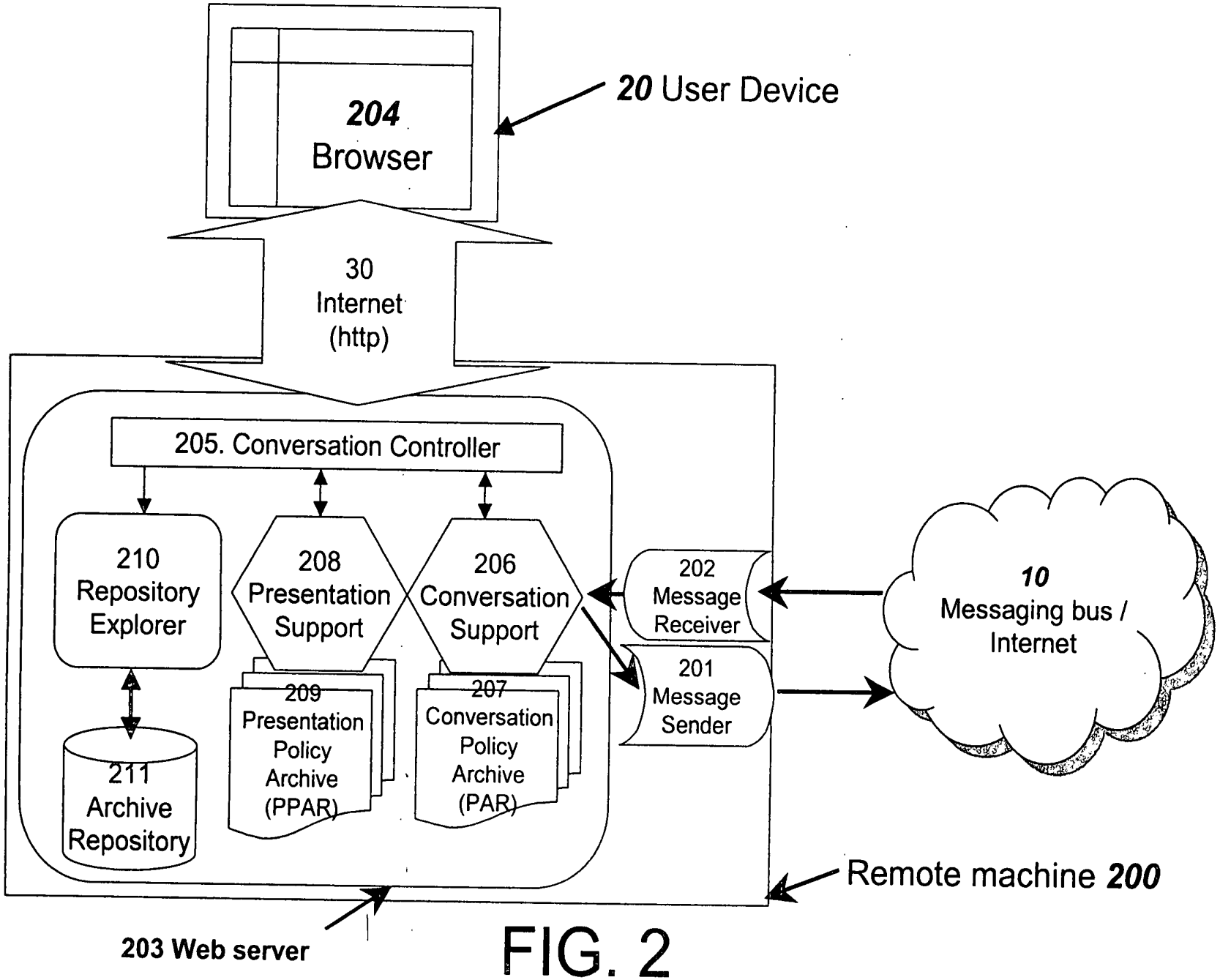
204
Browser
20 User Device
30
Internet
(http)
205. Conversation Controller
210
Repository
Explorer
208
Presentation
Support
206
Conversation
Support
202
Message
Receiver
201
Message
Sender
10
Messaging bus /
Internet
209
Presentation
Policy
Archive
(PPAR)
207
Conversation
Policy
Archive
(PAR)
211
Archive
Repository
Remote machine 200
203 Web server

FIG. 2

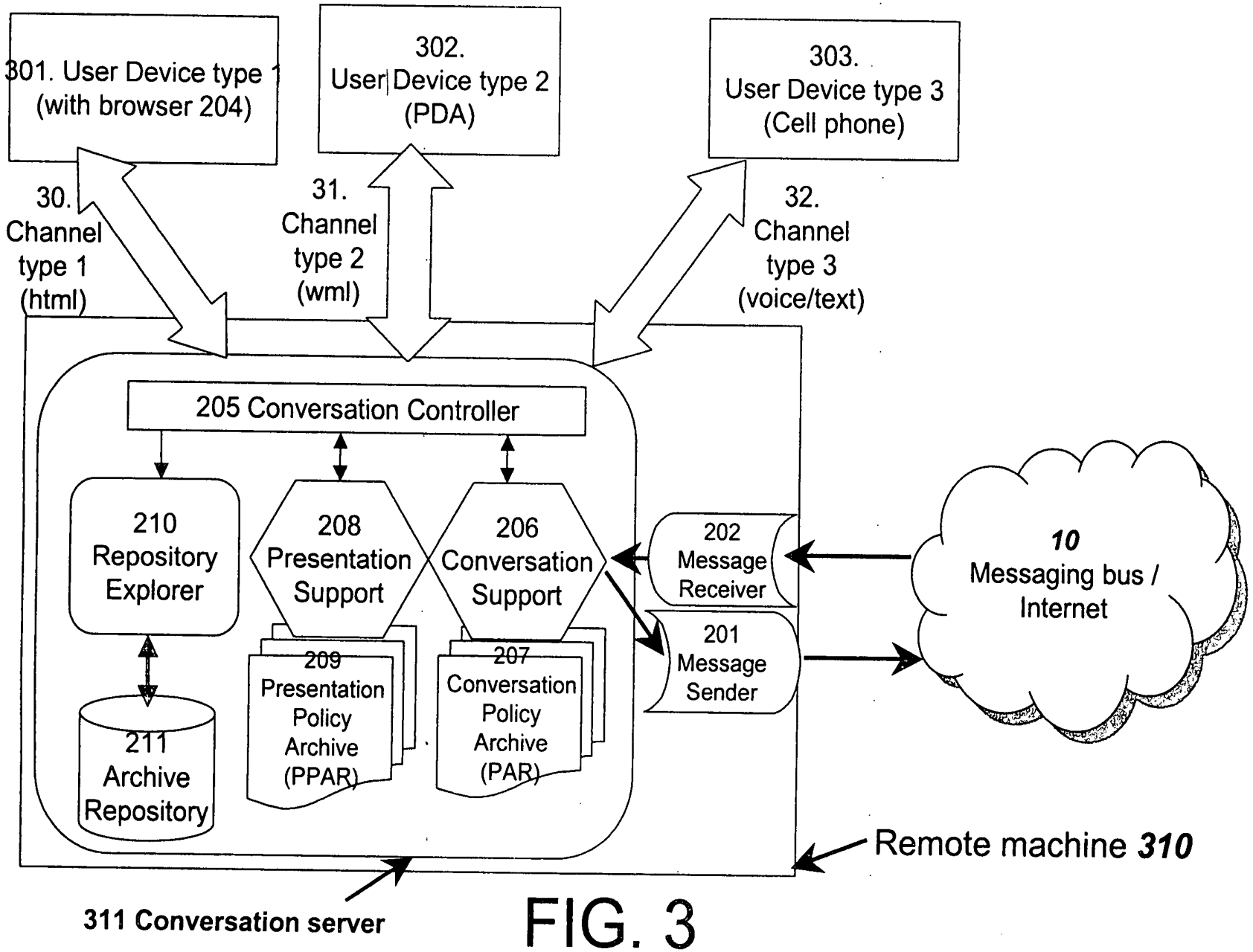
301. User Device type 1
(with browser 204)
302.
User Device type 2
(PDA)
303.
User Device type 3
(Cell phone)
30.
Channel
type 1
(html)
31.
Channel
type 2
(wml)
32.
Channel
type 3
(voice/text)
205 Conversation Controller
210
Repository
Explorer
208
Presentation
Support
206
Conversation
Support
202
Message
Receiver
201
Message
Sender
10
Messaging bus /
Internet
209
Presentation
Policy
Archive
(PPAR)
207
Conversation
Policy
Archive
(PAR)
211
Archive
Repository
Remote machine 310
311 Conversation server

FIG. 3

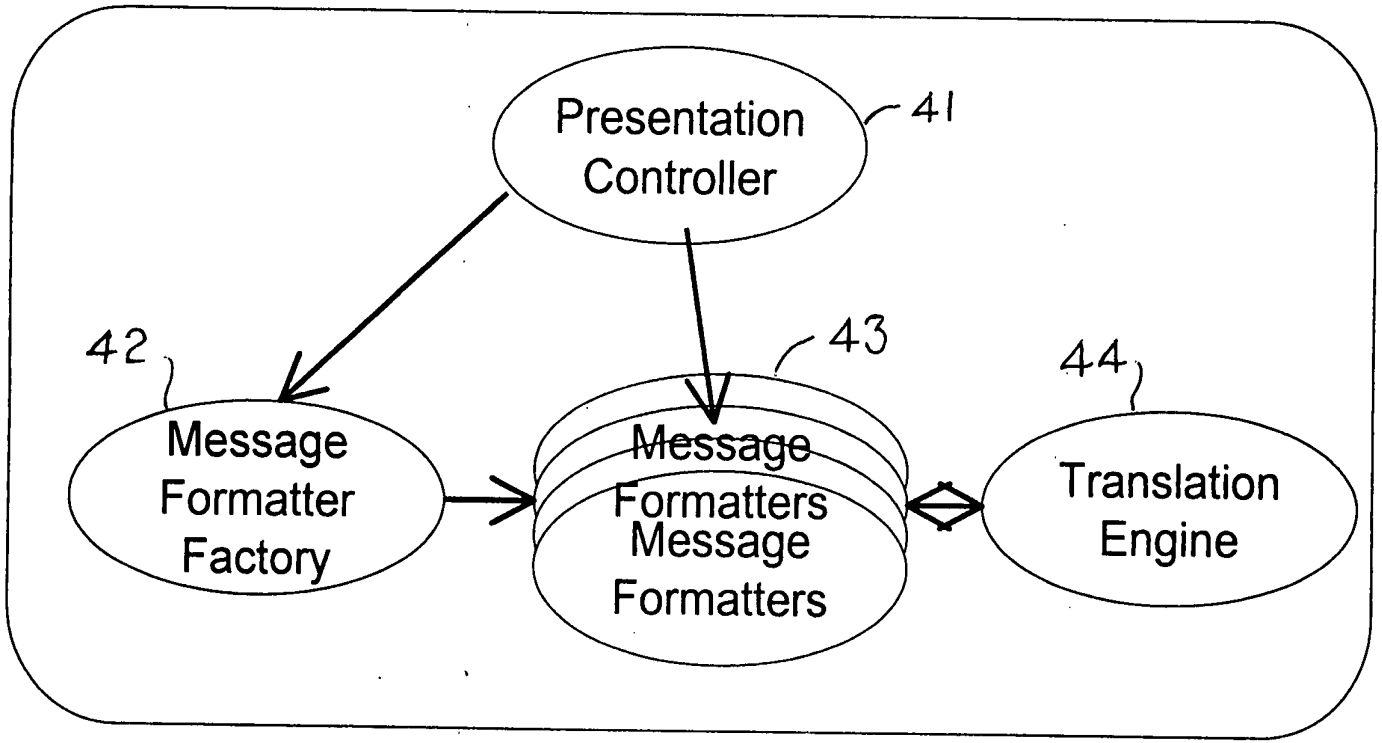
Presentation Controller
41
42
Message Formatter Factory
43
Message Formatters
Message Formatters
44
Translation Engine

FIG. 4

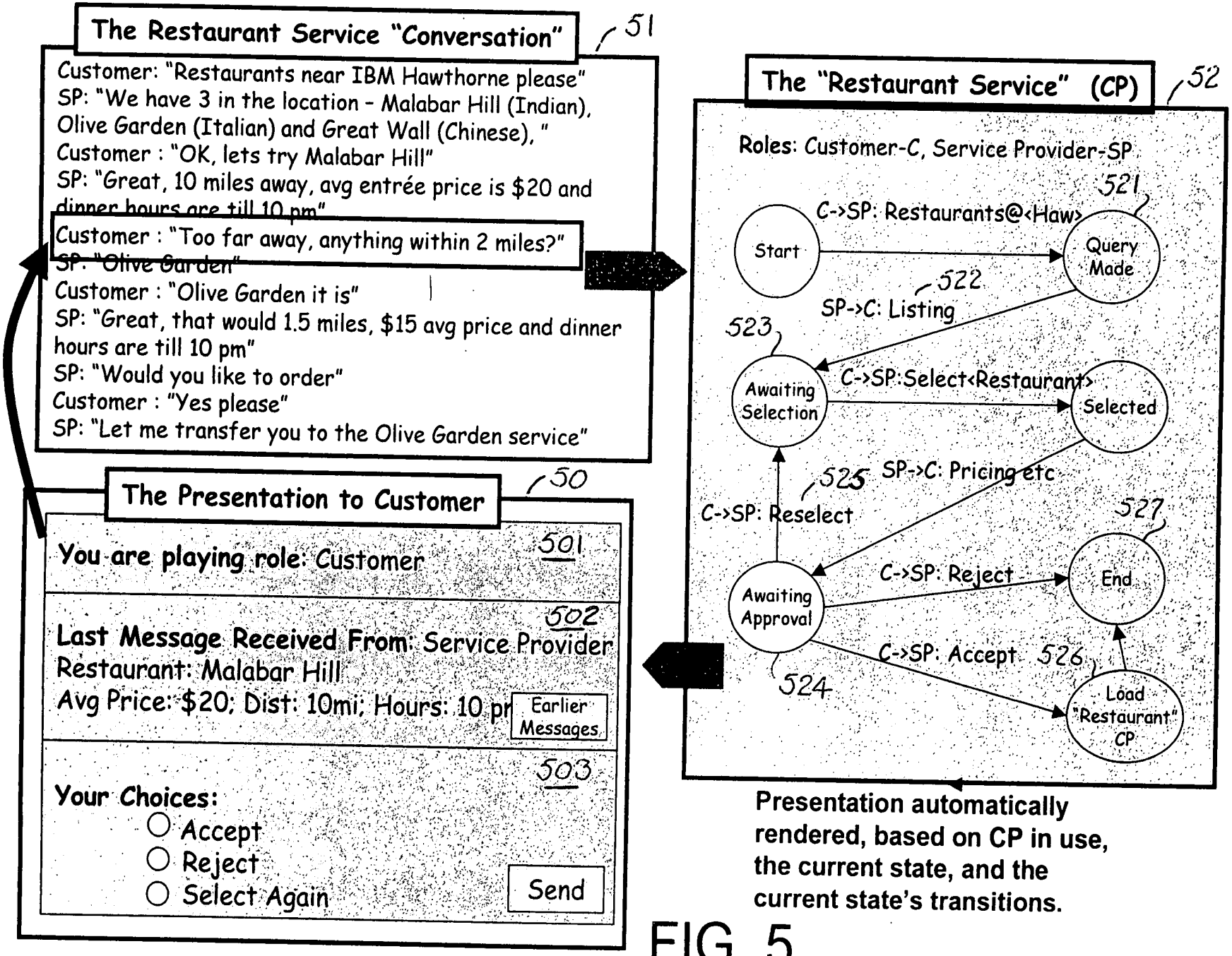
The Restaurant Service "Conversation"
51
Customer: "Restaurants near IBM Hawthorne please"
SP: "We have 3 in the location - Malabar Hill (Indian), Olive Garden (Italian) and Great Wall (Chinese), "
Customer : "OK, lets try Malabar Hill"
SP: "Great, 10 miles away, avg entrée price is $20 and dinner hours are till 10 pm"
Customer : "Too far away, anything within 2 miles?"
SP: "Olive Garden"
Customer : "Olive Garden it is"
SP: "Great, that would 1.5 miles, $15 avg price and dinner hours are till 10 pm"
SP: "Would you like to order"
Customer : "Yes please"
SP: "Let me transfer you to the Olive Garden service"
The Presentation to Customer
50
You are playing role: Customer
501
Last Message Received From: Service Provider
502
Restaurant: Malabar Hill
Avg Price: $20; Dist: 10mi; Hours: 10 pr
Earlier Messages
Your Choices:
503
Accept
Reject
Select Again
Send
The "Restaurant Service" (CP)
52
Roles: Customer-C, Service Provider-SP
Start
C->SP: Restaurants@<Haw>
521
Query Made
SP->C: Listing
522
523
Awaiting Selection
C->SP:Select<Restaurant>
Selected
SP->C: Pricing etc
525
C->SP: Reselect
527
Awaiting Approval
C->SP: Reject
End
C->SP: Accept
526
524
Load "Restaurant" CP
Presentation automatically rendered, based on CP in use, the current state, and the current state's transitions.

FIG. 5

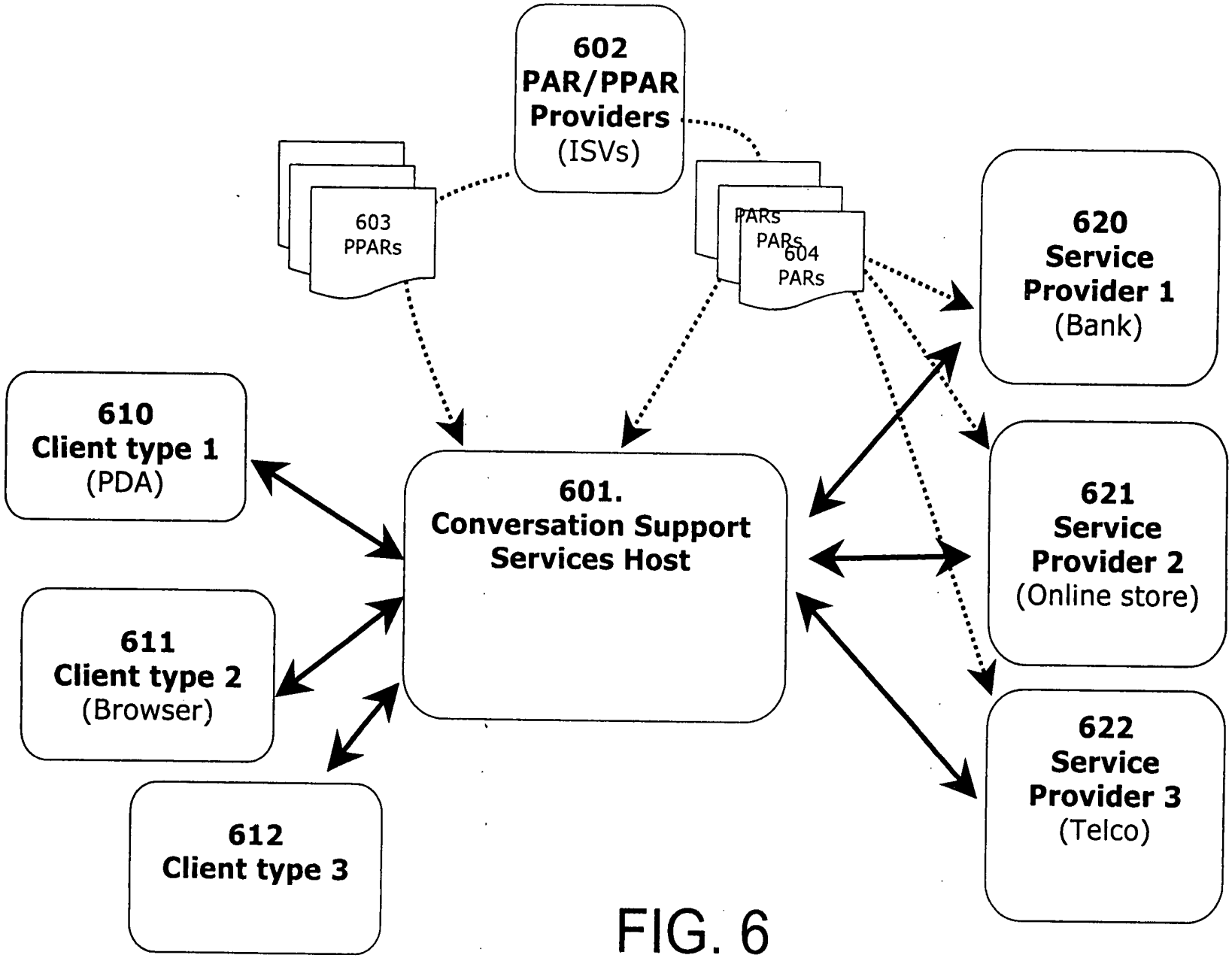
602
PAR/PPAR
Providers
(ISVs)
603
PPARs
PARs
PARs
604
PARs
620
Service
Provider 1
(Bank)
610
Client type 1
(PDA)
601.
Conversation Support
Services Host
621
Service
Provider 2
(Online store)
611
Client type 2
(Browser)
622
Service
Provider 3
(Telco)
612
Client type 3

FIG. 6

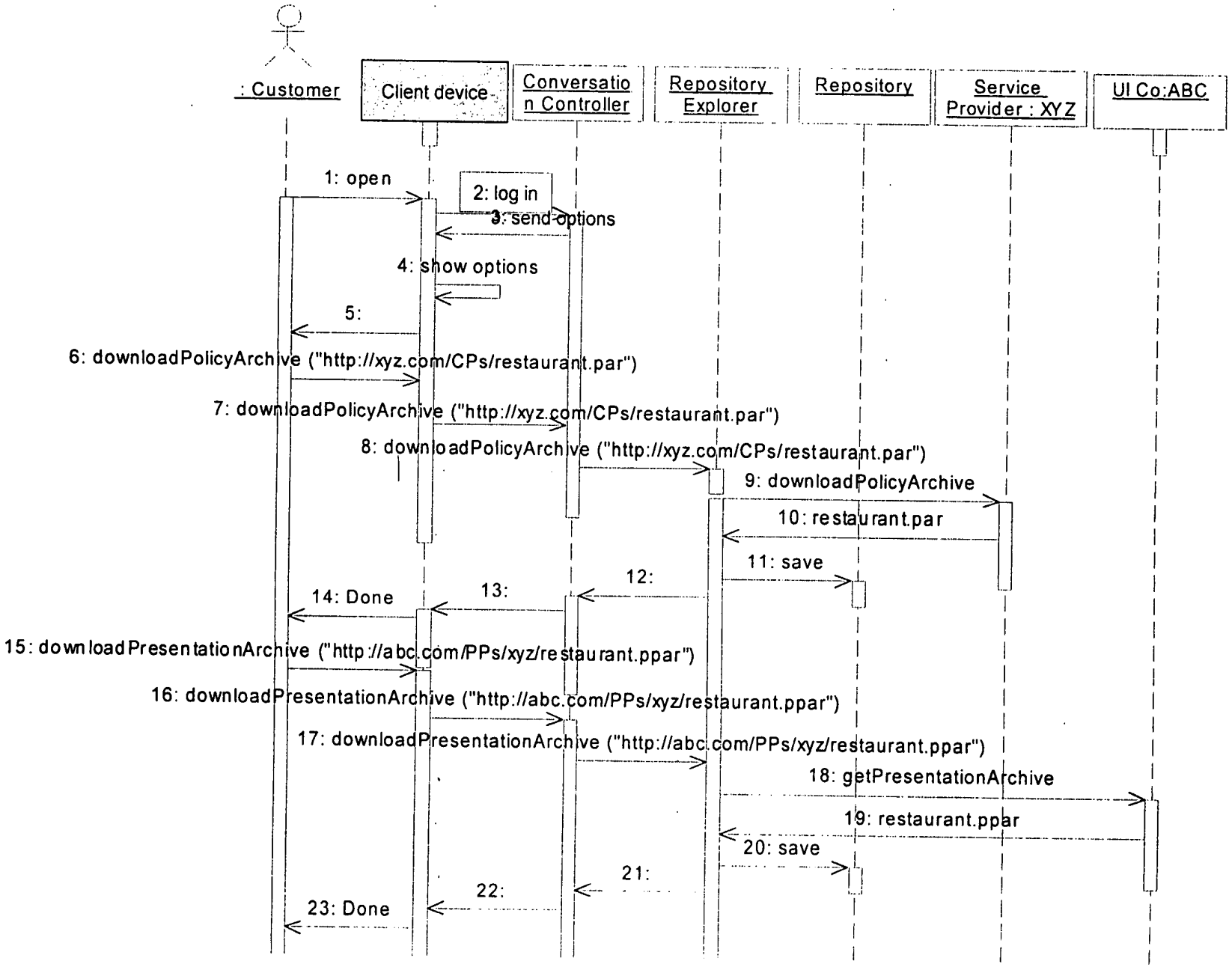
: Customer
Client device
Conversation Controller
Repository Explorer
Repository
Service Provider : XYZ
UI Co:ABC
1: open
2: log in
3: send options
4: show options
5:
6: downloadPolicyArchive ("http://xyz.com/CPs/restaurant.par")
7: downloadPolicyArchive ("http://xyz.com/CPs/restaurant.par")
8: downloadPolicyArchive ("http://xyz.com/CPs/restaurant.par")
9: downloadPolicyArchive
10: restaurant.par
11: save
12:
13:
14: Done
15: downloadPresentationArchive ("http://abc.com/PPs/xyz/restaurant.ppar")
16: downloadPresentationArchive ("http://abc.com/PPs/xyz/restaurant.ppar")
17: downloadPresentationArchive ("http://abc.com/PPs/xyz/restaurant.ppar")
18: getPresentationArchive
19: restaurant.ppar
20: save
21:
22:
23: Done

FIG. 7

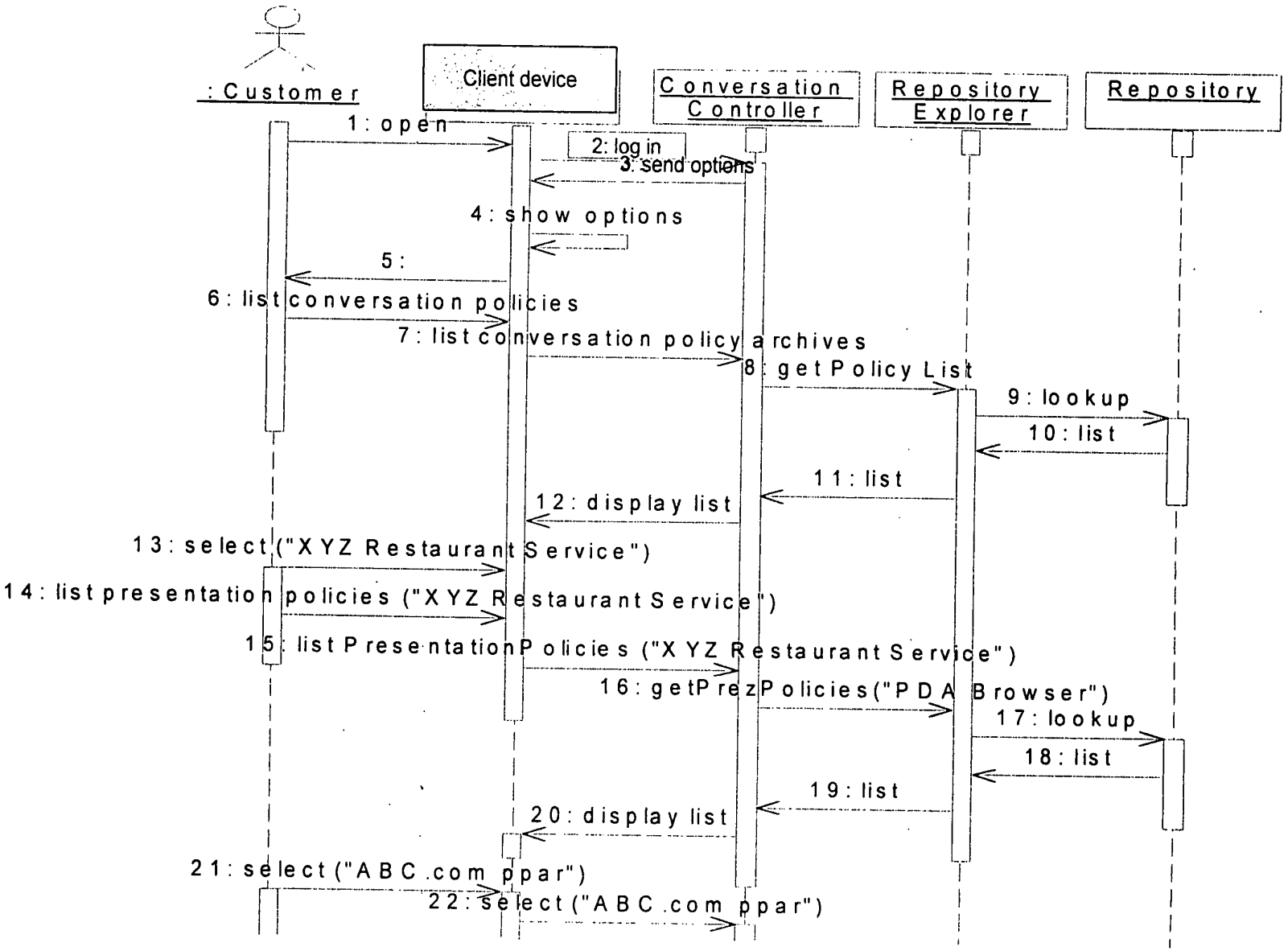
: Customer
Client device
Conversation Controller
Repository Explorer
Repository
1 : open
2: log in
3: send options
4 : show options
5 :
6 : list conversation policies
7 : list conversation policy archives
8 : getPolicyList
9 : lookup
10 : list
11 : list
12 : display list
13 : select ("XYZ Restaurant Service")
14 : list presentation policies ("XYZ Restaurant Service")
15 : listPresentationPolicies ("XYZ Restaurant Service")
16 : getPrezPolicies("PDA Browser")
17 : lookup
18 : list
19 : list
20 : display list
21 : select ("ABC.com ppar")
22 : select ("ABC.com ppar")

FIG. 8

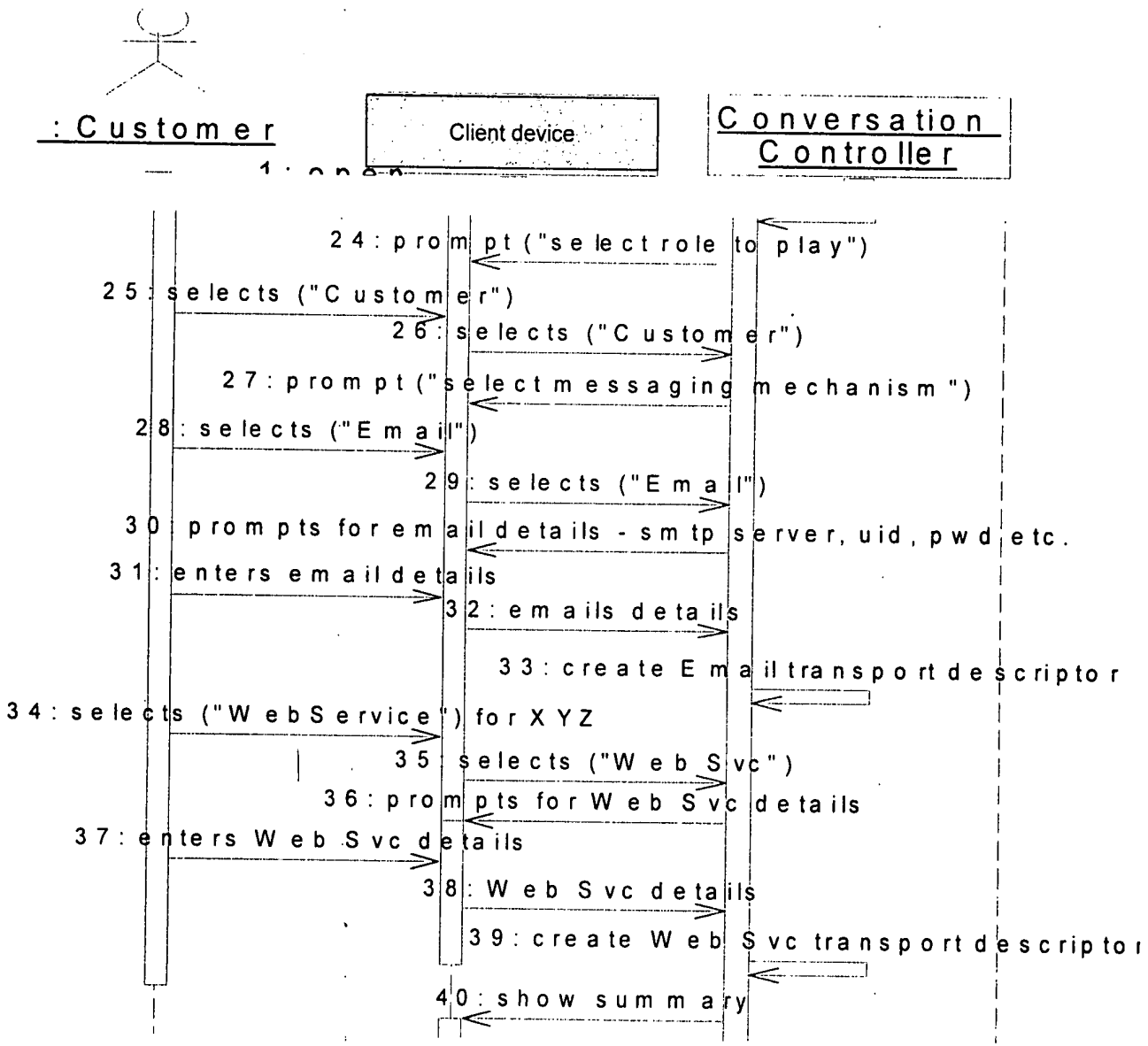
: Customer
Client device
Conversation Controller
24: prompt ("select role to play")
25: selects ("Customer")
26: selects ("Customer")
27: prompt ("select messaging mechanism")
28: selects ("Email")
29: selects ("Email")
30: prompts for email details - smtp server, uid, pwd etc.
31: enters email details
32: emails details
33: create Email transport descriptor
34: selects ("WebService") for XYZ
35: selects ("Web Svc")
36: prompts for Web Svc details
37: enters Web Svc details
38: Web Svc details
39: create Web Svc transport descriptor
40: show summary

FIG. 9

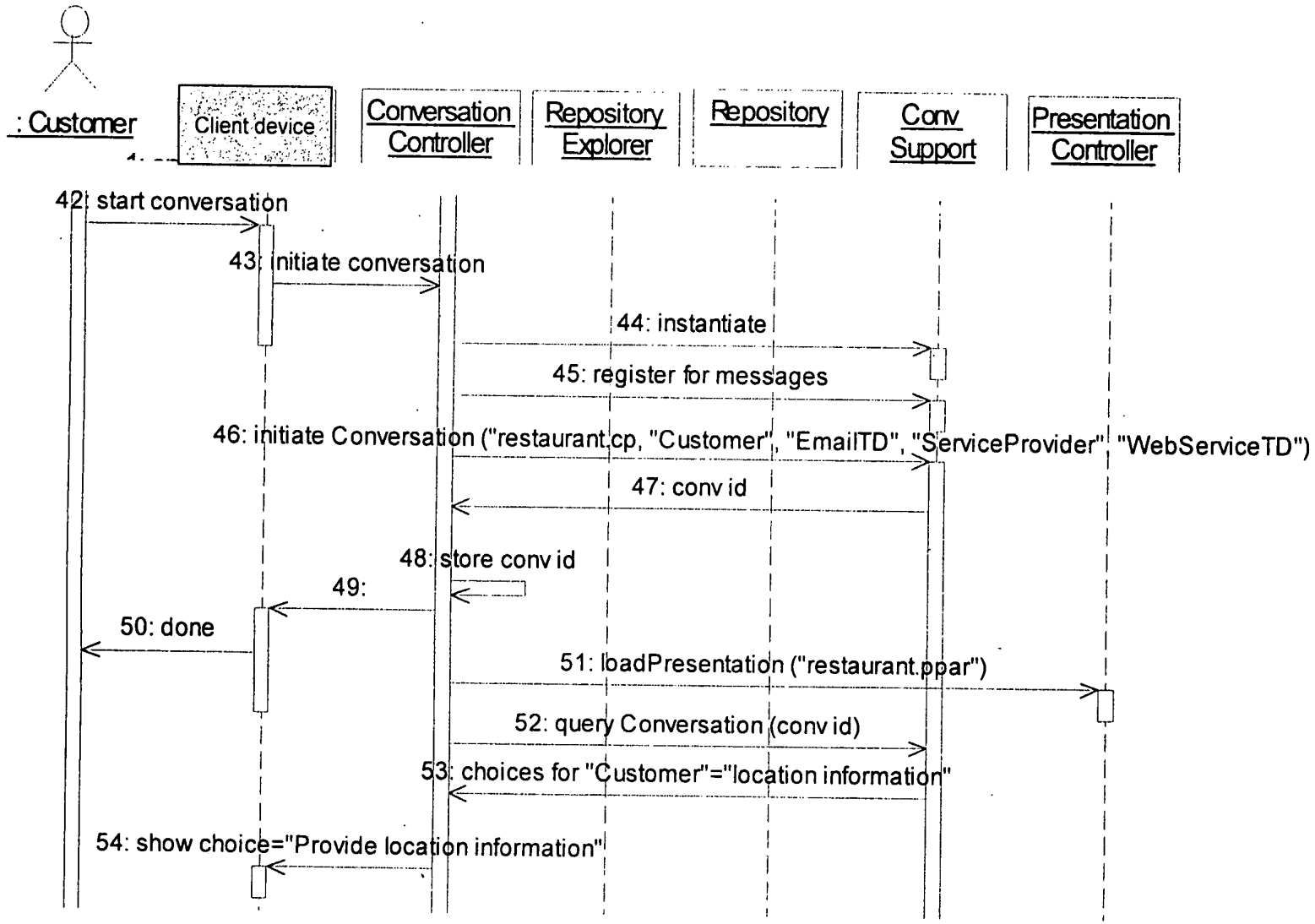
: Customer
Client device
Conversation Controller
Repository Explorer
Repository
Conv Support
Presentation Controller
42: start conversation
43: initiate conversation
44: instantiate
45: register for messages
46: initiate Conversation ("restaurant.cp, "Customer", "EmailTD", "ServiceProvider" "WebServiceTD")
47: conv id
48: store conv id
49:
50: done
51: loadPresentation ("restaurant.ppar")
52: query Conversation (conv id)
53: choices for "Customer"="location information"
54: show choice="Provide location information"

FIG. 10

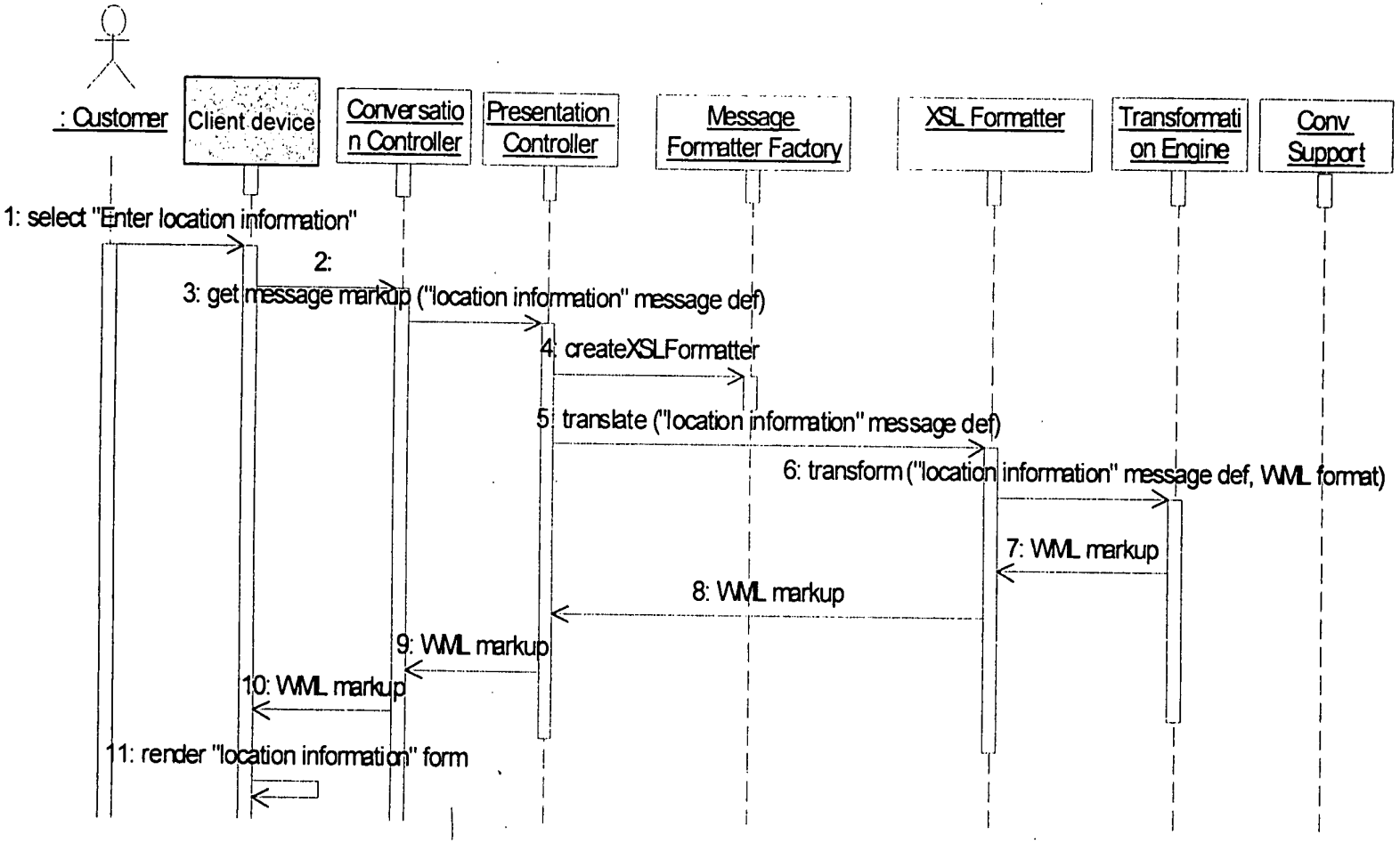
: Customer
Client device
Conversation Controller
Presentation Controller
Message Formatter Factory
XSL Formatter
Transformation Engine
Conv Support
1: select "Enter location information"
2:
3: get message markup ("location information" message def)
4: createXSLFormatter
5: translate ("location information" message def)
6: transform ("location information" message def, WML format)
7: WML markup
8: WML markup
9: WML markup
10: WML markup
11: render "location information" form

FIG. 11

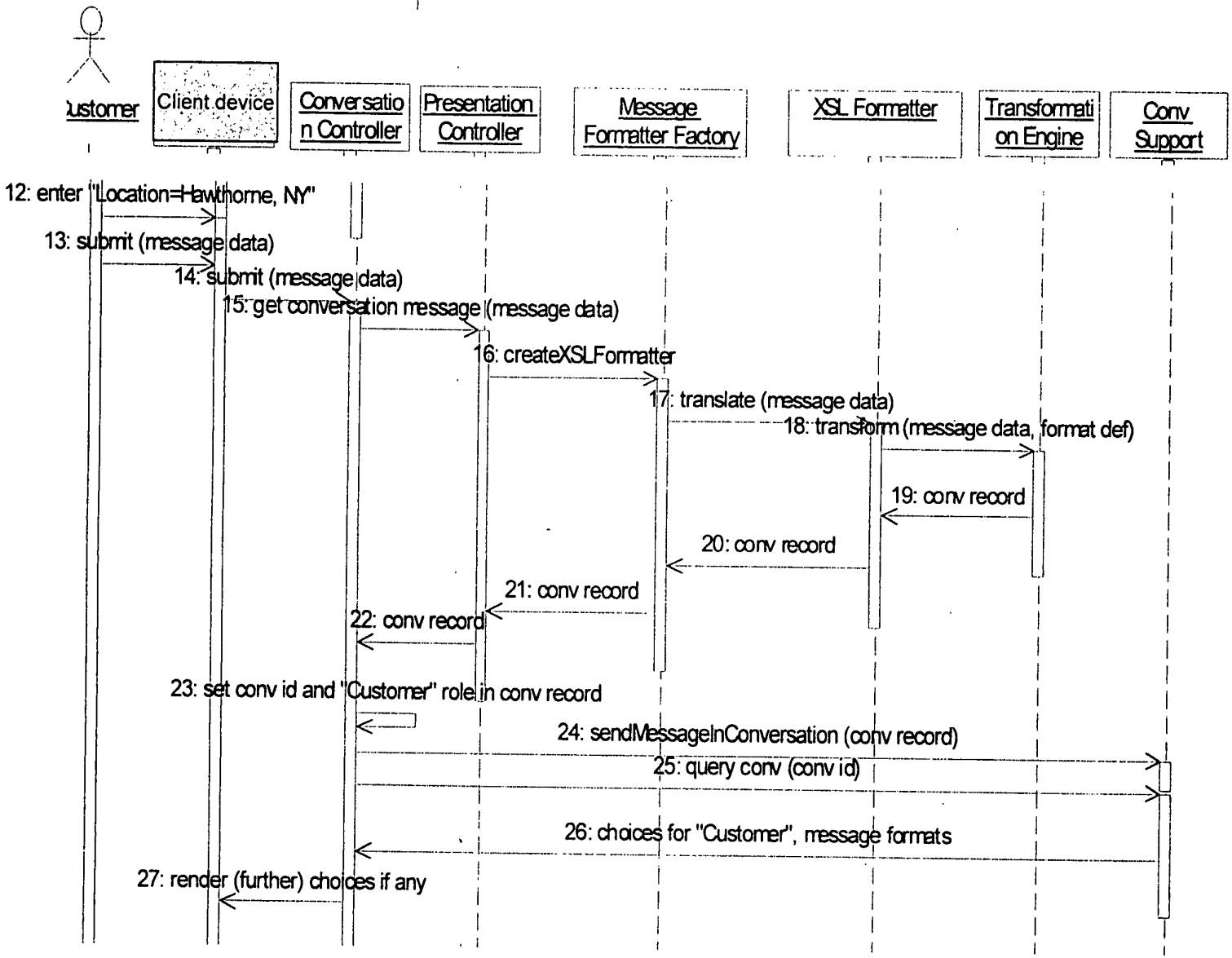
Customer
Client device
Conversation Controller
Presentation Controller
Message Formatter Factory
XSL Formatter
Transformation Engine
Conv Support
12: enter "Location=Hawthorne, NY"
13: submit (message data)
14: submit (message data)
15: get conversation message (message data)
16: createXSLFormatter
17: translate (message data)
18: transform (message data, format def)
19: conv record
20: conv record
21: conv record
22: conv record
23: set conv id and "Customer" role in conv record
24: sendMessageInConversation (conv record)
25: query conv (conv id)
26: choices for "Customer", message formats
27: render (further) choices if any

FIG. 12

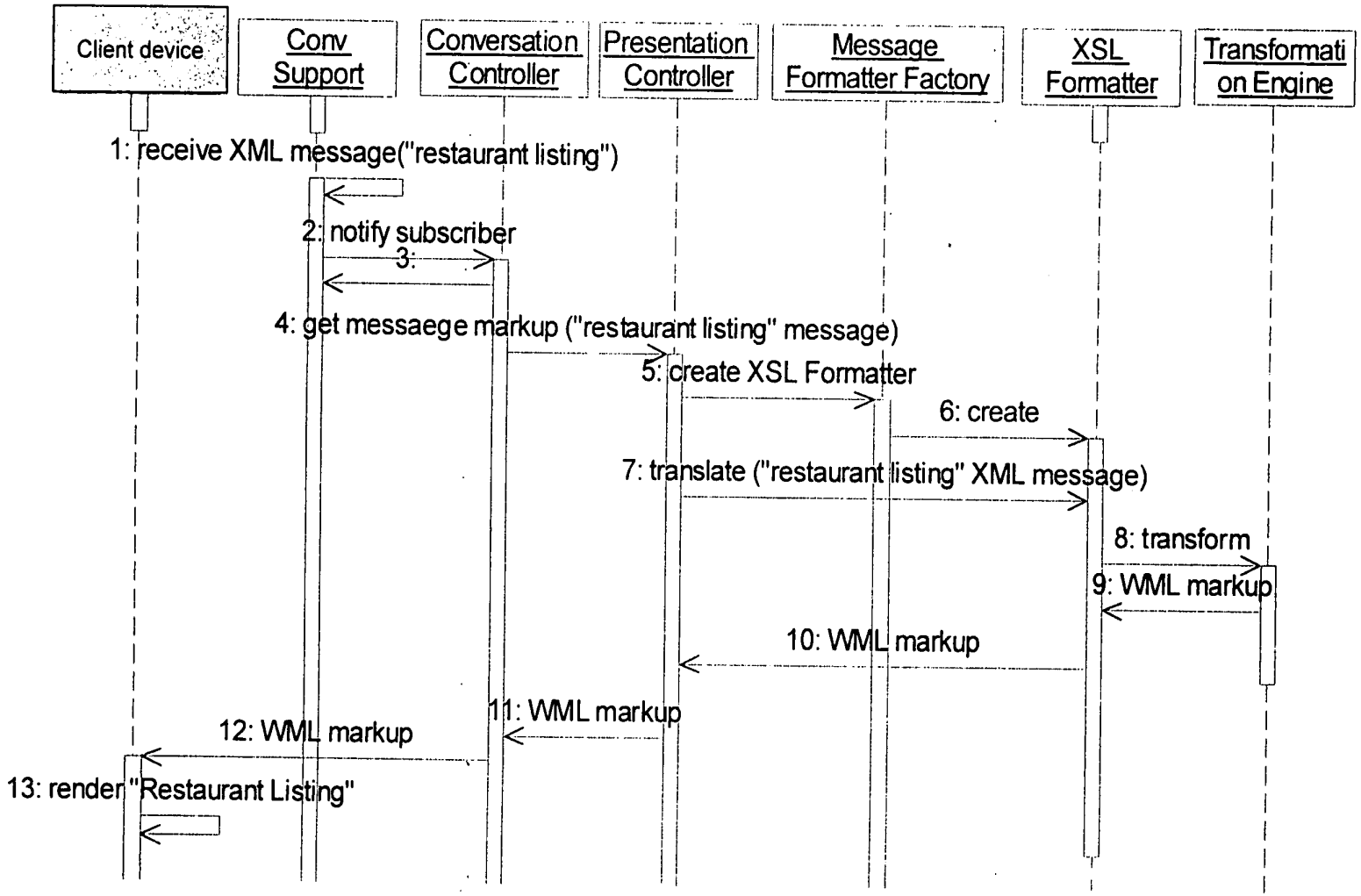
Client device
Conv Support
Conversation Controller
Presentation Controller
Message Formatter Factory
XSL Formatter
Transformation Engine
1: receive XML message("restaurant listing")
2: notify subscriber
3:
4: get messaege markup ("restaurant listing" message)
5: create XSL Formatter
6: create
7: translate ("restaurant listing" XML message)
8: transform
9: WML markup
10: WML markup
11: WML markup
12: WML markup
13: render "Restaurant Listing"

FIG. 13

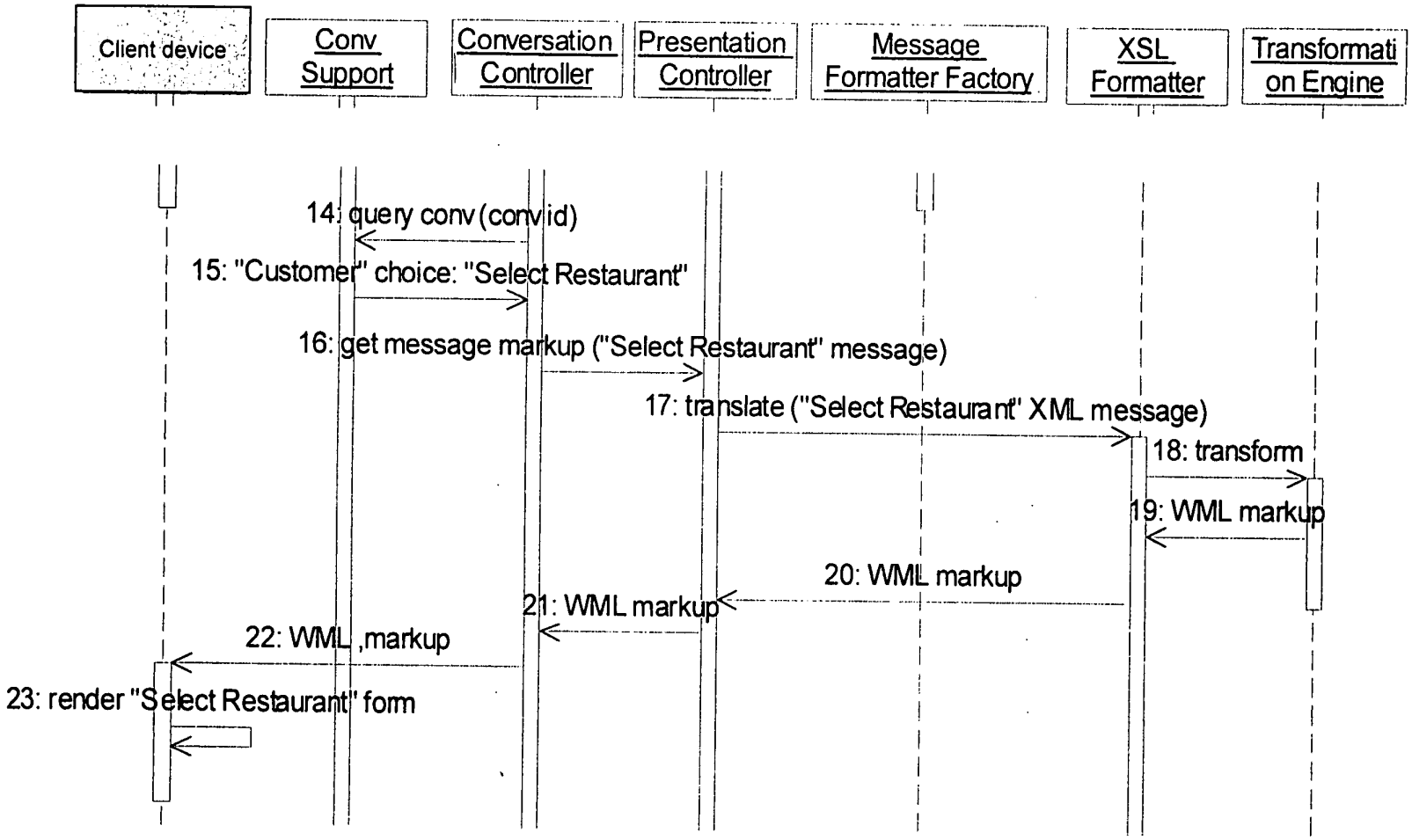
Client device
Conv Support
Conversation Controller
Presentation Controller
Message Formatter Factory
XSL Formatter
Transformation Engine
14: query conv (conv id)
15: "Customer" choice: "Select Restaurant"
16: get message markup ("Select Restaurant" message)
17: translate ("Select Restaurant" XML message)
18: transform
19: WML markup
20: WML markup
21: WML markup
22: WML ,markup
23: render "Select Restaurant" form

FIG. 14

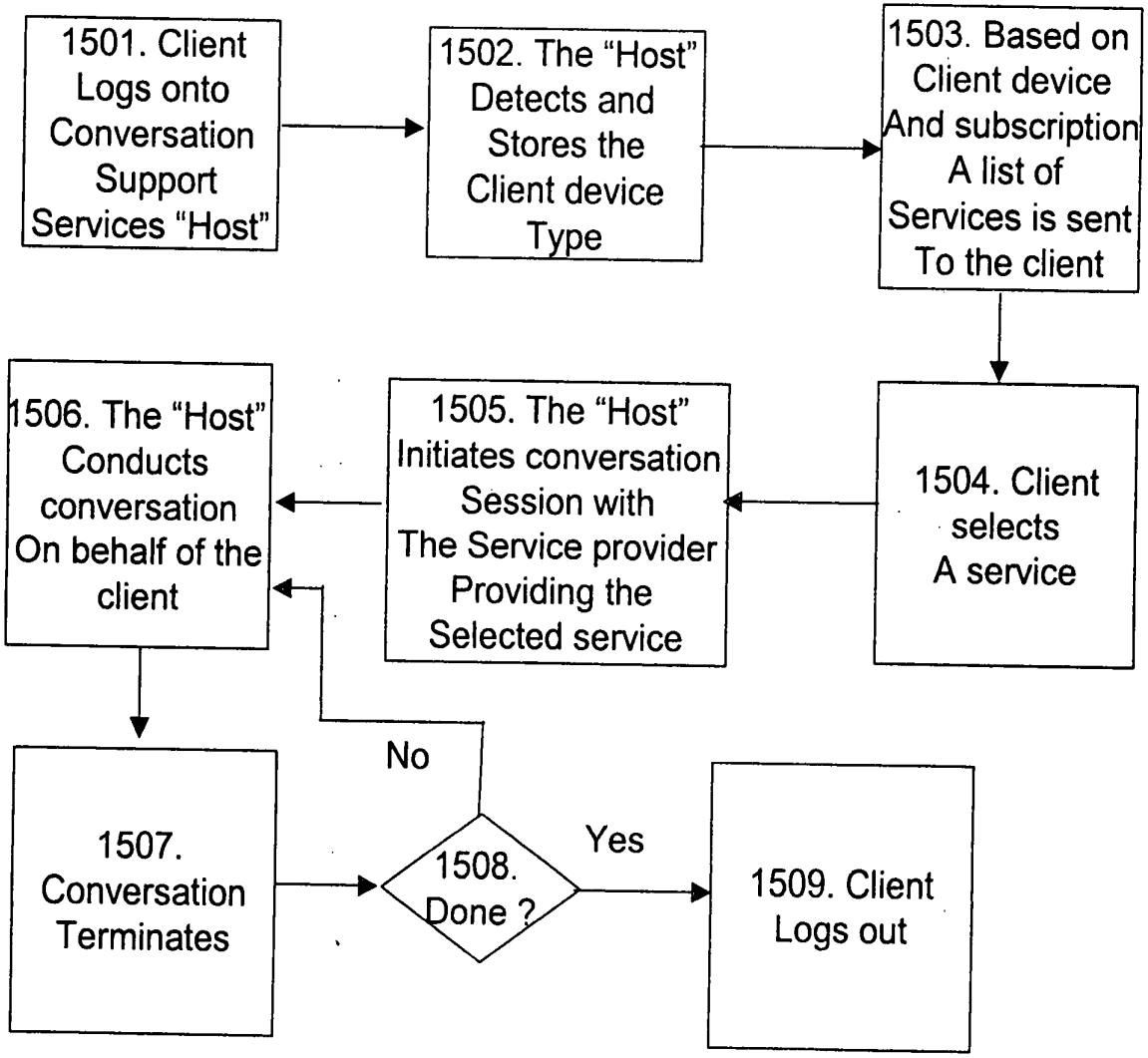
1501. Client Logs onto Conversation Support Services "Host"
1502. The "Host" Detects and Stores the Client device Type
1503. Based on Client device And subscription A list of Services is sent To the client
1504. Client selects A service
1505. The "Host" Initiates conversation Session with The Service provider Providing the Selected service
1506. The "Host" Conducts conversation On behalf of the client
1507. Conversation Terminates
1508. Done ?
No
Yes
1509. Client Logs out

FIG. 15